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ORIGINAL DEPARTMENT.

LECTURES

ON

EXPERIMENTAL PHYSIOLOGY.

Delivered in the Physiological Laboratory of the
University of Pennsylvania,

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Reported expressly for the MEDICAL AND SURGICAL
REPORTER.

Lecture I—Introduction.

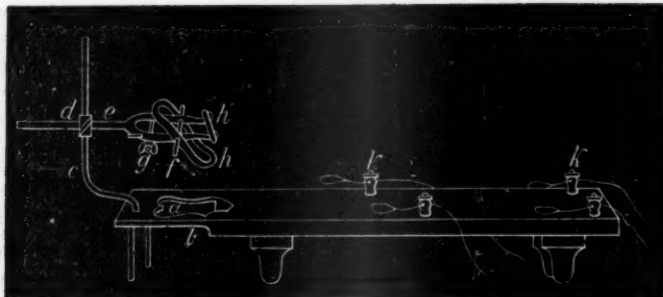
GENTLEMEN:—The course which we commence to day will be devoted, not only to the demonstration of the more important of the physiological facts which are due to experimental inquiry, but to your instruction in the *technique* of our subject—the management of apparatus and of animals, the method of performing the various operations, and, in fact, all those details which are so essential to successful experimentation. The use of the instruments and the selection of appropriate animals for the points under investigation, as well as the operative procedure in each instance, will be considered separately as we study each subject. There are, however, two points in this connection that I desire now to call your attention to. One a point of principle, the other, of practice. The first of these is that no experiments should be made upon sentient animals unless the circumstances of the case render the use of narcotics entirely inadmissible, for though we have a perfect right to take the life of a lower animal for any purpose that may directly or indirectly be of value to man, we have no right

to inflict upon them any unnecessary suffering. Therefore, the majority of experiments which I propose to make before you are those which can satisfactorily be made on insensible animals. To narcotize animals, chloroform, ether, opium and chloral, may be employed; chloroform is the most rapid anæsthetic that we possess, but its use is dangerous, particularly to dogs, unless air is also freely supplied. It is generally advisable to chloroform a dog before he is tied down on the operating table, as he appears to suffer more in the act of restraining him than in any step of the operation. I, therefore, generally muzzle the dog, and then put his front legs on my knees, while I sit down and hold his body with my left arm. If now a few drops of chloroform are poured into a towel folded into a cone and held over his nose he can be soon narcotized, the most reliable sign being the loss of sensation in the cornea. As soon as he is insensible he can be fastened down, and the chloroform cautiously continued, or ether substituted for it; his respiration must be closely watched, and if it is found to stop, no time must be lost in performing artificial respiration; and if this fails, the trachea must be opened and connected with a bellows. Laudanum and morphia are reliable anæsthetic agents for dogs, about 2½ c.c. of laudanum, or 0.5 gram. of morphia when intravenously injected, being full doses for medium-sized dogs. When rabbits are to be used, chloral is preferable, given in doses of about ten grains per pound weight of the rabbit. Chloral may also be given in the same proportion to cats and guinea pigs. This is also the best agent for frogs, since opium and morphia tetanize them,

and chloroform is apt to be fatal; dose for frogs 0.2-0.5 gram. Chloroform, or any of the other volatile anæsthetics may be readily administered to all the smaller animals, such as frogs, mice, pigeons, guinea pigs or kittens, by placing the animal under a bell jar, containing a sponge wetted with the anæsthetic. Since the vapor of chloroform is heavier than air, if this agent is

clamped fast by a binding screw. The forks of this rod are hollow, and receive the ends of the forceps which secure the animal's head. When it is desired to fasten a rabbit, the bar (*f*) is placed behind its incisor teeth (behind the canines when a cat is used), and the screw (*g*) turned until (*h*) and (*h'*) fit tightly over its muzzle, (*h'*) being always in contact with the

FIG. 1.



CZERMAK'S RABBIT HOLDER.

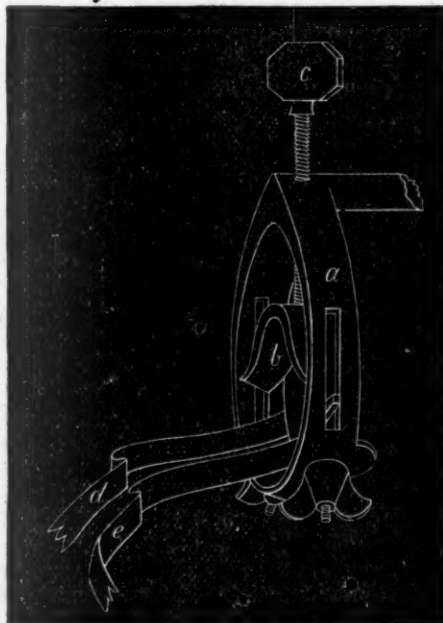
used, it is well to have an opening in the top of the jar, into which a sponge can be placed and saturated with chloroform; the action is then more rapid and safer.

When it is desired to keep an animal perfectly motionless, curara is used; but since this paralyzes the motor nerves, and hence necessitates the use of artificial respiration, I will defer its consideration until it becomes necessary for us to employ it.

The other point that I want now to call your attention to is the method of securing animals. Frogs may be fastened on a board by a cord with a slip knot fastened over each foot and ankle, and secured at each corner of the board; or when they are insensible they may be fastened by passing a tack through the point of the nose into the board and one through each foot. Rabbits and cats are best secured on Czermak's rabbit holder. This consists of a strong wooden board (Fig. 1), mounted on four feet, about thirty inches long, eight inches wide, and four inches high, strengthened at one end by an iron plate (*b*), perforated by a large opening (*a*) to permit operation on the back of the neck, such as dividing the cord, etc. This opening, when not used, may be covered with an iron plate. Screwed into this plate is a strong, vertical stem (*c*) which bears a sliding block of brass (*d*) into which a fork-shaped steel rod (*e*) slides horizontally, and can be

lower jaw. The animal's legs are confined by slip-knots passed around each ankle, the cord being secured in the binding screws (*k*).

FIG. 2.



BERNARD'S DOG HOLDER.

Dogs are best fastened in Bernard's holder. It consists of a long wooden trough, with holes

along the sides for the cords which fasten the legs, while the animal's head is secured by means of a special arrangement. (Fig. 2.) It consists of a strong metal ring (*a*) fastened to a horizontal arm. The sides of this ring have slits in them, to permit of the up and down motion of a metal compress (*b*), which can be elevated or depressed by means of a screw (*c*), and thus when depressed confine the animal's jaws. The snout having been placed under this compress, the animal is prevented from retracting its head by two straps (*d* and *e*), which are fastened behind the animal's neck, and are connected by their anterior extremities with movable pieces of metal which can also be elevated or depressed according to the conditions required. A very simple method of fastening dogs, when these special contrivances are not on hand, is to place transversely behind their canine teeth a piece of wood, which, when rendered stationary by tying the animal's jaws together, may serve as a support in securing them.

Physiology of Digestion.

You are all aware, gentlemen, that the appropriation of a definite amount of nutriment forms one of the essential conditions of life, whether of animal or vegetable, and it has seemed to me that we cannot begin more appropriately a series of demonstrations of physiological facts than by following the changes which that material must undergo, and the means by which these modifications are accomplished, before it can serve as nutriment.

We will, therefore, commence our experiments by studying successively the various fluids to whose action the material taken as food is subjected—saliva, gastric juice, bile, and the intestinal fluids—examining to a limited extent their composition, since this branch belongs more particularly to physiological chemistry, while we will study with more detail the character of their digestive action, the circumstances which modify it, and the influence of the nervous system upon their secretion. We will commence, therefore, with the rôle of the salivary secretion.

The uses of saliva are both mechanical and chemical. Mechanically, it assists in the formation of the bolus of food, after having previously aided its mastication, and acts as a lubricant to its passage into the stomach; it aids the appreciation of taste, and by lubricating the surfaces of the mouth and teeth, prevents the adhesion

of viscid substances and permits the movements of rapid articulation. Its chemical attributes are even more important; these we will examine in detail presently. The saliva is a remittent secretion formed by the three pairs of salivary glands, to which is added the fluids furnished by the lingual and palatine glands, and the numerous follicular glands of the buccal mucous membrane. We will examine first this mixed saliva.

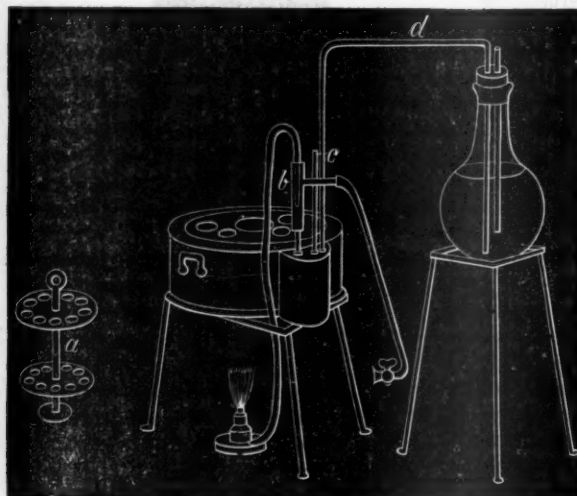
I have here about 30 c.c. of fresh mixed saliva, obtained by expectoration after stimulating its flow by chewing a piece of rubber tubing. You see that it is opalescent, with quite a decided froth on its surface, from the air bubbles detained through its viscosity, and that there is a marked white precipitate, composed mainly of epithelial cells and salivary corpuscles. (In this other specimen, which has stood for two or three days, a thin pellicle of carbonate of lime has formed.) Its specific gravity is 1.005; its reaction, as shown by the litmus paper, decidedly alkaline. The instances in which an acid reaction has been found in the fluids of the mouth are due to an increased acidity of the buccal mucus from some pathological cause, such as the fermentation of retained fragments of food, the tartar of the teeth; saliva is invariably alkaline.

Of its inorganic constituents, I will only call your attention to the sulphocyanide of potassium and the chlorides.

I have here a few c.c. of saliva which has been filtered, to remove the epithelial cells and mucus. To a portion of this I add a drop of a solution of perchloride of iron, so dilute as to be almost colorless, and you see, as I stir it, a decided red color is developed, showing the presence of the sulphocyanide. Occasionally the reaction fails, but it can almost always be produced if the saliva is evaporated to about one-third of its bulk. There is probably no other one element of an organic fluid which has caused so much dispute as this salt, whose presence I have just demonstrated. The reaction has been supposed to be due to the presence of nicotin, to the presence of acetates, of decomposed matters from carious teeth, to hydrophobia, etc. This reaction may become important in a medico-legal point of view, since it is identical with that of meconic acid; the two substances can be distinguished, however, in a very simple manner. I will add a few drops of a solution of mercuric chloride to a

mixture of the saliva and the perchloride of iron, and the color disappears; no such result would have been obtained had the saliva contained meconic acid. The red color produced by meconic acid and perchloride of iron remains unaltered by the addition of corrosive sublimate. The presence of chlorides may be proved by taking this other portion of the filtered saliva, and acidifying it strongly with nitric acid; and now the addition of a few drops of a solution of nitrate of silver causes quite a decided precipitate, which, you observe, dissolves readily in aqua ammonia.

FIG. 3.



WATER BATH.

a. Test-tube Rack. b. Gas Regulator. c. Thermometer. d. Syphon arrangement by which the water is kept at a constant level.

The organic constituents of saliva are albumen, mucin, and ptyalin. The presence of albumen is shown by what is termed the xanthoproteic reaction. To a portion of fresh saliva I add a few drops of strong nitric acid, and you notice that although the mixture becomes slightly turbid, there is no distinct precipitate; upon boiling it becomes clearer and takes on a faint, yellowish hue. I will let this stand for a few moments until it cools off somewhat before finishing the test. To the presence of mucin is due the tenacity and stickiness of saliva. To another portion of the same saliva I will add gradually a few drops of acetic acid, stirring all the time, and the fluid becomes more and more tenacious, until finally the mucin separates in stringy flakes. The test for albumen has now

cooled considerably, so we can proceed with the reaction. You remember I added nitric acid and boiled the fluid with the production of this yellowish tint as the result. I will now add a little ammonia, and the faint yellow becomes very decidedly marked, almost orange-red, in fact, showing the presence, to a considerable degree, of albuminoids. Ptyalin, or "animal diastase" is the substance on which the property of converting starch into sugar depends. It has been obtained in this instance by extraction from the salivary glands of an ox with glycerine. The gland is finely minced and

covered, in a corked flask, with absolute alcohol. In twenty-four hours the alcohol is poured off, and as much as possible driven off from the gland by pressure; the residue is then covered with glycerine and allowed to stand for several days, being stirred occasionally. At the end of this time the whole is strained through muslin, and then filtered, and the ptyalin is precipitated from the filtrate by an excess of alcohol. The precipitate can then be collected by subsidence and decantation, and must be dried at a low temperature, over sulphuric acid. It is soluble in water, and differs entirely in its reaction from albumen. The xanthoproteic reaction cannot be produced, nor is any precipitate produced with acetic acid and potassium ferrocyanide.

We come now to the study of the most important of the attributes of the salivary secretion, viz., its power of converting starch into sugar.

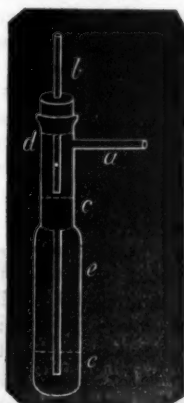
In each of these three test tubes, which we will number 1, 2, 3, I have placed the same quantity of starch mucilage, made by mixing one grain of powdered starch into a thin paste with a few drops of cold water, and then adding the paste to 100 c.c. of boiling water, and allowing it to boil for ten minutes; then, after standing until the sediment has settled, the clear, supernatant fluid is filtered off and is ready for use. I will now divide this specimen of fresh filtered saliva into two equal parts; one part I add to the test tube marked 2, and the other, after boiling thoroughly for three or four minutes, I add to 3. Into this fourth test tube

I will put saliva alone. I will put them all, now, for a few minutes, into the water bath, heated to 38°C . 1, containing starch mucilage alone; 2, containing one part of saliva to three times its bulk of starch mucilage; 3, starch and saliva in the same proportions, the saliva, however, having been boiled, while the fourth test tube contains saliva alone. While we are waiting until the test tubes have been subjected for a few minutes to the heat of the water bath, I will explain to you the mechanism of the bath (Fig. 3). The bath itself is made of copper, and is twelve inches in diameter and five inches deep; at one side it bulges out, and in the projection thus formed the thermometer and gas regulator are placed. The top consists of a movable copper plate, perforated with several large holes, into which evaporating basins can be placed, while one of them receives this rack for test tubes. Each hole is provided with a cover, which is made with a depressed margin fitting into a groove around each hole so as to make a water joint and prevent escape of steam, the vapor being condensed and falling back into the bath as water. The water is kept at the same constant level by this syphon arrangement. It consists of a glass tube bent twice at a right angle, one end dipping into the bath and the other into this flask containing water; the cork in the mouth of the flask is also perforated for the passage of a straight glass tube, one end of which dips in the water in the flask, and the other communicates with the air. The syphon tube is then filled with water by blowing into the straight tube and so driving the water over into the bath, and then the straight tube is pushed down into the water until its lower end is at the level at which it is desired to keep the water in the bath; this end must be slightly above that of the syphon tube, the vertical difference between the level of these ends forming the effective syphon power. When, now, the level of water in the bath falls below the end of the straight tube, from evaporation, the syphon acts, and the water flows over from the flask into the bath, until the water in the latter attains its former level.

The most important part of the whole arrangement, however, is the gas regulator, modified from Bunsen (Fig. 4), which keeps the bath at a constant temperature. It consists of a wide glass tube, about six inches long, with a narrow horizontal arm coming off at its upper

part, and divided at about the centre by a horizontal partition or septum, from which a tube runs down nearly to the bottom of the large tube. The large tube is fitted with a perforated

FIG. 4.



BUNSEN'S GAS REGULATOR.

a. Tube connected with gas main, b, with the gas burner. When the bath has been heated to the desired temperature, the tube b is pushed down until its lower surface touches the upper surface of the mercury, c, thus shutting off all the gas except what can pass through the minute opening d. The bath then cools, and the expanded mercury and hot air compressed in c shrink and more gas passes until the bath is again heated up, when the expanding mercury again shuts off the gas.

cork, through which passes a small tube open at both ends, and having, at about an inch from the lower end, a minute opening in one side. When wanted for use, a quantity of clean, dry mercury is poured into the large tube (part of which runs down the inner tube from the septum, and compresses the air in the lower chamber), until there is about an inch of mercury over the septum. The cork is then put in, and the horizontal arm connected with the gas main, and the straight tube with the burner under the bath. When, now, the thermometer shows that the water is heated up to 38°C . the inner tube is pushed down until its lower end comes in contact with the upper surface of the mercury which has risen in the large tube, partly from the expansion of the mercury from the heat of the bath, but more especially from the expansion of the air compressed below the septum driving the mercury up the tube. When, now, the small tube is pushed down to the mercury, all the gas is shut off from the burner except as much as can pass through the minute hole in the side of the inner tube, which you see is just enough to keep the burner lit. If,

now, the bath should cool, the mercury and hot air would contract, and more gas would pass until it is again heated up to the temperature at which it was set, when the rising mercury would again shut off the gas. By this means the temperature can be kept nearly constant for weeks. We are now ready to examine our results of the combination of the saliva and starch.

Let us now examine the test tubes—

In No. 1, which you remember contained starch mucilage alone, the addition of a few drops of iodine solution, so dilute as to be almost colorless, causes the instant appearance of the characteristic *blue color* of the iodide of starch, while, if I add a few drops of Fehling's solution to another portion of the same specimen, adding merely enough to give the fluid a blue tinge and then boil, there follows no decoloration or deposit, showing that the starch employed contains *no sugar*.

To a portion of No. 2, which contained starch mucilage and saliva, I add a few drops of the same solution of iodine, and you see the result is very different; there is no such decided blue as occurred in the first instance, merely a faint tinge of *violet*, from the presence of dextrine. The starch has disappeared. To another portion of the same specimen I now add a few drops of Fehling's solution, and upon boiling there is a copious, yellowish-red precipitate, due to the reduction of the cupric to cuprous oxide, and showing the presence of a considerable quantity of sugar. The sugar has replaced the starch.

With the fluid from No. 3, which contains starch and saliva, which latter, however, you remember was boiled, a few drops of iodine gives still the reaction of starch, while boiling with Fehling's fluid shows no sugar. You will learn from this that boiling destroys the property possessed by saliva, of turning starch into sugar. In some instances, when there is an appreciable quantity of proteids in the saliva, the blue of the Fehling's solution is changed to violet.

With the fluid of No. 4, containing merely saliva, there is no reaction to iodine, and the Fehling's solution, when boiled with it, has, I think, more of a violet tint than before.

You have seen, then, that when starch mucilage is subjected to the action of saliva *for a few minutes*, at a temperature of about that of the body, the starch is entirely converted into sugar.

I lay stress upon the condition "for a few

minutes," for I want you to appreciate that this conversion is not instantaneous. It was taught by Bidder and Schmidt, that momentary contact of the saliva with starch was all that was necessary to turn the starch into sugar, and an experiment which has been long used to substantiate this view, and which appears, at first, to demonstrate its truth, is really by no means conclusive. The experiment is as follows: Into this beaker, which contains a little saliva, warmed up to 40° C., I will add, drop by drop, a solution of starch which has been colored blue by iodine, and you see, as each drop falls, it is decolorized. It has been supposed that the starch was instantly converted into sugar, breaking, in this manner, the combination of the iodine and starch. That this view, however, is erroneous, was pointed out by Schiff. He showed that the decoloration was due to the conversion by the saliva of the iodine into hydriodic acid, and that many other organic fluids, which would not convert starch into sugar, would decolorize iodide of starch.

I have here a quantity of dog's urine, which you see also decolorizes the iodide of starch; and, if I add a little morphia to another portion of solution of iodide of starch, you see the color disappears. In neither of these substances is there the property of converting starch into sugar, but the result is due to the oxidization of the iodide. There are two practical points to be drawn from this demonstration: First, since the starch is not instantaneously converted into sugar upon contact with the saliva, mastication should be prolonged and thorough, though by no means can all the starch be converted into sugar in the mouth. And second, that starch cannot be considered as a conclusive test for the presence of iodine in the various secretions. It is often desired to test urine, milk, etc., for iodine, as in cases of iodism, and all that is deemed necessary is to add a solution of starch mucilage to the suspected liquid, and if the characteristic blue color does not appear, it is concluded that no iodine is present. This procedure is doubly fallacious; not only because these very fluids have the power of decolorizing solutions of the iodide of starch, but even when iodine is present, it is not in the form of free iodine, but as hydriodic acid, the very agent through which this decolorization is effected.

Let me anticipate here what I will demonstrate to you directly; viz., that cold saliva has little, if any action on raw starch, unless in con-

tact for some hours; yet you see that if I add a little iodine to this mixture of raw starch paste and saliva, no blue coloration is produced, while the iodine will act on raw starch as I now show you. This is another proof that the decolorization was not due to the conversion of starch into sugar.

Continuing our study of the chemical properties of mixed saliva, we have now to examine the influence of temperature, and of acids and alkalies on the diastatic properties of saliva. I have here four test tubes, into each of which I introduce a little saliva with a pipette. 1 I place in a mixture of salt and ice; 2 in the rack on the table; 3 in the water bath at 40°C ., and the 4th I boil vigorously for a few minutes, and allow it to cool. After they have been reduced to the temperature of their respective media, I add to each a little starch paste, and after waiting a few minutes test each of them for sugar. None is found in 1; a little in 2; more in 3, and none in 4. I now place the remaining portions of 1 and 4 in the water bath, and after waiting a few minutes test them each again for sugar. Sugar is now found in 1, but none in 4. Therefore you have seen that the power of saliva for converting starch into sugar is more or less suspended at a low temperature, while it is destroyed at a high temperature.

I have shown you that the conversion of starch into sugar is by no means instantaneous, and that even with the most prolonged mastication some unconverted starch is swallowed, and if, therefore, becomes interesting to know whether the acid of the gastric juice will interfere with the process. It is also known that in some pathological cases the reaction of the mouth is acid; is the conversion of starch into sugar thereby prevented?

In these three test tubes 1, 2, and 3, I have placed equal bulks of starch mucilage and saliva. To 1 I add an equal bulk of distilled water; to 2 an equal bulk of distilled water containing 0.65 per cent. of mercantile muriatic acid, which forms an acid of about 0.2 per cent. of H.Cl. being about the degree of acidity of the gastric juice; to 3 I add the same bulk of 10 per cent. muriatic acid. We will put them each into the water bath. After allowing them to remain for a few minutes I will test them each for sugar. It is found in 1 and 2, but none in 3. I will now carefully neutralize the acidity of 3, by adding, drop by drop, a weak solution of caustic potash, carefully avoiding excess until

this litmus paper which I have put in the tube gradually becomes pinkish instead of the decided red which it showed before. I will now put it back in the bath, and in a few minutes test again for sugar; and you see it is present in considerable quantity. You will learn from this that although all the starch does not become sugar in the mouth, the acidity of the gastric juice will not interrupt its conversion, and if from any cause either the secretion of the mouth or that of the stomach should become extremely acid, the process will again go on when the excess of acidity has been neutralized by the intestinal fluids, which, you know, are alkaline. It is also well for you to know that the diastatic action of saliva is *destroyed* by the caustic alkalies, not recoverable upon neutralization; but the weaker alkalies, such as lime water, ammonia, carbonate of soda, etc., merely suspend its power of converting starch into sugar. You have, therefore, in these facts the rationale of the administration of alkalies in cases of excessive acidity, either of the mouth or stomach, as in pyrosis, to permit the digestion of amylaceous articles of food, while you also see that in the many cases in which it may be necessary to administer alkalies, there is no danger of arresting this function of the saliva, since, when neutralized in the stomach, the process again goes on.

You have seen that saliva converts starch mucilage rapidly into glucose; the action on raw starch, however, is much slower and more complex. It does not transform it directly, but extracts from it a part, which alone is converted into glucose, while the rest remains unaltered.

Those of you who have examined starch granules under the microscope, know that each granule consists of a number of layers, arranged in an eccentric manner around a point called the hilum. These layers consist alternately of two substances, which are termed respectively starch cellulose and starch granulose. The latter alone is colored by iodine, unless the granules have been previously acted on by sulphuric acid or chloride of zinc. Saliva acts only on the granulose, and hence, when raw starch has been subjected for several hours to saliva, the granules are not colored by iodine though they still retain their form. The saliva has extracted part of the starch granules, the granulose, which it has converted into glucose, while it still leaves intact the cellulose. With starch mucilage, made with boiling water,

however, the case is different; under these circumstances the starch is totally changed; no residue can be discovered upon microscopic examination. The cellulose has itself been altered by the action of the boiling water, and both the cellulose and granulose are changed into dextrine, and it is the dextrine which is converted into glucose. That the cellulose is really the agent which prevents the action of saliva on raw starch, can be readily proved by removing the cellulose artificially, as by powdering starch granules with fine sand, when the cellular envelop is broken up, and an aqueous solution of the granulose can be readily made, which will be comparatively rapidly acted on by saliva.

That the conversion of starch is due to the presence of ptyaline, is proved by the experiment showed to you a few minutes ago, in which you saw that boiling saliva destroyed this property, from which, on the other hand, you would be justified in inferring that ptyaline is what is known as a ferment, and acts "catalytically," a convenient expression of our ignorance.

There is only one other point that I want to call your attention to, in reference to the action of mixed saliva on starch, or rather, I should say in reference to the result of that action; and that is that sugar dialyses, and starch does not.

Into one of these dialysers, formed by tying a piece of parchment paper over one end of a bell-shaped tube, after having found by testing that they are perfectly tight, I have placed some dilute starch mucilage; in the other, another portion, with some saliva. Both were then suspended in separate vases of water for twenty-four hours. We will now examine them. Upon adding iodine to the fluid around the first, there is no evidence of starch; nor, upon testing with Fehling's fluid of sugar. While in the fluid around the second, there is no starch, but there is decided evidence of sugar. Sugar, therefore, dialyses, but starch does not. All the preceding experiments can be made with an aqueous infusion of the salivary glands of most of the lower animals; *e.g.*, guinea pigs, oxen, sheep or rabbits.

Duboisin.

This new remedy, derived from the leaves of the cork-wood tree of Australia, is now coming into considerable use as a mydriatic, and also as a preventive of night sweats. In the latter field it is preferred by some to atropine or belladonna. From the reports received, it is doubtless a valuable alkaloid.

COMMUNICATIONS.

VESICO-VAGINAL FISTULA, OF EIGHT YEARS' STANDING.

BY E. C. DUNNING, M.D.,
Of Wilmington, Del.

Mrs. Catharine B., a native of Ireland, aged 44 years, the mother of six children, was seized with labor at full term, during the month of August, 1870. She states the labor was difficult, and after fifteen hours she was delivered, with instruments, of a dead male fetus. For some days after she urinated in the natural way, but complained of being extremely sore, and as she expressed it, "gathered inside." After ten days, while sitting in a chair, she felt something give way in the vagina, and a warm gush of urine flow over her parts. A vesico-vaginal fistula was thus formed, no doubt, from a slough, resulting either from long continued pressure of the fetal head upon the vesico-vaginal septum, or from injury to this part by the instruments employed. During the next three years, 1871 to 1873, she was operated upon four times, in the hospitals of Philadelphia, for the closure of the fistula, but without success. She became pregnant in the autumn of 1873, and in the following spring came to me with a note from the surgeon who had operated upon her in Philadelphia, requesting me to take charge of her in her confinement. Upon the 19th of June, 1874, I delivered her of a healthy male child.

The fistula was not enlarged by this labor. She returned to Philadelphia in the fall of 1874, and during the three succeeding years, 1874-77, was operated upon four more times, but without success. Indeed, the fistulous opening had been enlarged to twice its original size, being now fully two inches in its long or transverse diameter. She found herself again pregnant in the fall of 1877, and in the following August, 1878, I delivered her of another healthy male child. She had been now for eight years suffering with this loathsome and distressing malady, and had been operated upon eight different times for the cure of the same. Discouraged by her friends from any further efforts for relief, she had become sad and despondent. She now turned to me and asked me to undertake her cure. I called Dr. D. W. Maull in consultation, and after an examination it was decided to operate, although the surrounding

circumstances were not the most favorable. The patient's general health was good. On the 18th of October, the bowels having been freely moved the previous day, the following operation for closure of the fistula was performed by Dr. D. W. Maull, assisted by Drs. Lewis P. Bush, Willard Springer, and myself. The patient having been thoroughly etherized, was turned upon her abdomen, across some hard pillows, before a good light, and a Sims duck-bill speculum introduced, which brought the fistulous opening clearly into view.

The fistula involved the inferior fundus of the bladder, was transverse in direction, oval in shape, and fully two inches in its long diameter. The fundus of the bladder dipped through the fistulous opening into the vagina, forming a vesical hernia, and had been accompanied with severe bearing down pains. Adhesive inflammation had glued the bladder to the upper margin of the fistula, so that this viscous could not be entirely returned to its normal position. The bladder was now seized with a pair of long forceps and dissected away from the upper margin of the opening, and returned to its natural position. The edges of the fistula were then well freshened, and after the hemorrhage had ceased, were brought together by seven silver wire sutures, which were twisted upon themselves, no button or shot being used. The ends of the sutures were encased in a piece of gum tubing and brought out of the vagina. The woman was now placed upon her back, in bed, and after she had recovered from the anesthesia, a Sims self-retaining catheter was introduced into the bladder, to which was attached a piece of gum tubing, to conduct the urine to a vessel placed in a chair alongside of the bed, and thus the bladder kept well drained. A half a grain of morphia was now administered and repeated in six hours. On the following morning, October 19th, patient had rested well, but was suffering from nausea and had some retching. A teaspoonful of liq. bismuthi ammonia citratis relieved these symptoms, and half a grain of pulv. opii was substituted for the morphia, to be continued morning and evening. Perfect rest and a light, but nutritious diet was ordered, the catheter to be changed every twelve hours, and the vagina syringed with tepid water, into which a little carbolic water had been poured. October 23d all inflammatory symptoms had disappeared; urine clear and flowed

freely; skin soft and general condition excellent. Same treatment continued.

As there was no purulent discharge from the wound, and the sutures were causing no irritation, they were allowed to remain until October 30th, twelve days after the operation, when they were removed, and the wound had united throughout.

As the fistula was of large size, it was thought best to retain the catheter in the bladder for a few days longer, to allow the cicatrix to become thoroughly solidified before subjecting it to any strain.

November 1st. The opiate was now withdrawn, and the bowels were opened with small doses of ol. ricini, given every six hours, having been confined two weeks without causing the patient any inconvenience.

November 7th. The catheter was removed and the patient urinated through the urethra, which she had been unable to do for the previous eight years. She was now permitted to rise from bed. There was no incontinence, but perfect control of her urine at this writing.

November 20th. The cicatrix is firm: she has perfect control; urinates naturally, and is entirely restored, and is attending to her home duties with a cheerfulness of disposition and buoyancy of spirit which clearly attest the change which has been wrought in her condition.

HOSPITAL REPORTS.

PHILADELPHIA HOSPITAL.

CLINIC OF DR. F. F. MAURY.

REPORTED BY DR. C. W. DULLES.

Case 1.—Erysipelas of the Face and Scalp.

GENTLEMEN:—This patient was brought before you a week ago, expecting an operation for the relief of an epithelioma which had destroyed a large part of the floor of the mouth on the right side, had opened its way through the right cheek, and promised before long to terminate the man's existence. He was very anxious to have any operation done which would relieve him of some of the horrors entailed by this disease, no matter at what risk, and I had made up my mind to attempt to help him, when, you will remember, the appearance of his face led me to fear he was threatened with erysipelas, and I sent him to the ward, telling you my reason at the time. And now you see how well-grounded was my fear. The next day erysipelas broke out, and has since pursued its typical course, so that, as the man lies before you, with his face enormously swollen and disfigured, no one could

mistake what has taken place. His skin, you see, is much discolored, of a bronze hue. This is dependent upon the fact that it and his shaven scalp have been painted with a solution of equal parts of alcohol and tincture of iodine. In addition, Dr. Moore, my resident, has judiciously given him, three times daily, twenty-four drops of the tincture of the chloride of iron and five grains of quinine, as well as from fourteen to eighteen fluid ounces of whisky every twenty-four hours. His food has been entirely fluid—for the poor fellow cannot eat, on account of the destruction of so large a part of his face—and it has been necessary to inject it into the oesophagus with a syringe, to which was attached a piece of rubber tube.

The man says, as well as he can, that he is now feeling pretty comfortable; he has no pain about his head, and sleeps well, for him. I promise him I will operate next week, if he is in good enough condition.

Case 2.—Injury of the Shoulder Joint.

This man comes before us with some trouble at the left shoulder, not as yet clearly distinguished. There is no surgical subject in regard to which so many mistakes are made, so many suits for malpractice instituted, as that of the injuries of bones and joints. The elbow joint is perhaps the one about which there is most trouble, and it furnishes a fine opportunity for an original thesis, which, if it added to our knowledge, would make its writer to be remembered.

In the case before us we see a shoulder whose rotundity, as compared with the right, is lost; there is an apparent shrinking of the deltoid muscle, the fibres of which look a little stretched, and in which I find gutters, for this muscle is coarse, like the glutei. When I tell the patient to put his hand on his opposite shoulder, he does it, though with difficulty; when he attempts to put it on the crown of his head, however, he cannot, without bending his head down to meet his hand.

I now examine his shoulder joint by grasping firmly the scapula above and the humerus below. In conducting such an examination, never take hold of the hand, for then you have two joints, the wrist and the elbow, between you and the part to be examined, and you cannot do it properly. You must grasp firmly the part just above and the part just below.

When the man lets me have his arm to myself, I find only an abnormal stiffening and impairment of motion. My fingers, thrust up into the axilla, find that the head of the humerus is not displaced, and so I make the diagnosis that there has been a luxation of the humerus, which has been reduced, and we have now to deal with adhesions formed in consequence of the luxation.

The treatment must be passive motion, which I will now practice and have it repeated every day until the joint moves freely. It causes considerable pain, but I don't think it necessary to give ether. The man must be willing to bear something if he would be cured. If the pro-

cess proves irritating we may suspend it for short intervals and make anodyne applications. At the same time I will have the parts about this joint well rubbed with the following liniment:—

R.	Spts. rosmarin,	f.3ij
	Lin. ammon.,	f.3vj
	Lin. sapon.,	q. s. ad f.3vj.

Case 3.—Sinus of the Leg.

On the inner aspect of this young man's leg you see two openings, with purplish, unhealthy looking margins, from which a small amount of semi-purulent matter can be pressed. The origin of this trouble he associates with a gunshot injury, and it has now lasted a long while.

The appearance of the openings would lead us to suspect—especially in this location—that they communicate with dead bone. If this be the case we must remove it; if not, if we have but a sinus here, a free incision will enable us to ascertain this, and also put it in the best condition for healing.

We begin by applying Esmarch's bandage. This consists of a roller of rubber, which is applied tight, and without reverses, from the very extremity of a limb to a point above where an operation is to be performed; and a piece of rubber tubing which is drawn very firmly about the limb several times and fastened just above the last turn of the roller, which is then removed from this point downward. The roller drives out of the limb almost every particle of blood, and the tube, acting as a tourniquet, prevents its return. We thus have the means of doing tedious, and otherwise bloody, operations without any hemorrhage to interfere with our work or hide it from our eyes. This is of special value in operations upon the bones, and I consider Esmarch's bandage as one of the greatest achievements of modern surgery. For my own part, I may say, too, that I have never seen any evil results from its employment, such as other surgeons have reported, and have no fear of it.

Now, in proceeding with our operation, I make a free incision between these openings, as I have over and over again charged you to do. Make an exploratory incision in the skin, free. Don't be afraid. Then I examine with my finger—the best probe possible—the bottom of this tract, and I find no dead bone; we have only a sinus here. I now scrape out a large quantity of caecoplastic lymph, to freshen the walls of the sinus, and put it in a good condition for repair.

In all this, you see, there has not been a drop of blood lost—not a drop. But now, as my resident slowly loosens the rubber tube, you see the pallid limb growing rosy. The blood is returning to it, and comes welling up from the raw surface I have made. I do not check this at once, for I believe the depletion will do good; but after it has continued for a while, if it do not cease spontaneously, we will insert a piece of sponge soaked in equal parts of Monsell's solution and water, and leave it in for a

day. In this way we shall expect to secure the healing of this sinus before long.

Case 4.—Phagedena.

The woman now brought before you is the one whom you saw some weeks ago (vide MEDICAL AND SURGICAL REPORTER, October 19th, 1878), with a deep ulcer at the side of her vulva, the origin of which she said was traumatic. I was then inclined to believe she was right, but now I am by no means satisfied of this. Our treatment was the local application of iodoform and general tonics; but the ulcer has not been doing well. As you now see, it has destroyed the right labium, dissected up a part of the mons veneris and the perineum, leaving an ugly gap toward the right ischiatic fossa. The edges and surface of the ulcer are indurated and dense, and I have concluded to make an application of a very decided character, namely, the hot iron. You have seen me use this frequently, for I have great faith in its merits, and I think you know that the results I have obtained are such as would encourage my faith.

Our patient has been etherized, and we must be careful not to set fire to the ether vapor with our irons. Such an accident happens every now and then. The irons are heated to a white heat, and I apply one firmly against the surface of the ulcer, and press it into its recesses. Another is necessary, for the surface to be cauterized is extensive, and I wish to do it thoroughly. When this is attained, I place against the parts a folded towel which has been soaked in cold water. I will now order the application of a light poultice, to assist in the removal of the eschar, after which we will apply a stimulating ointment, to aid the granulating process.

Case 5.—Syphilis.

Here is a young man who has a large swelling over each sterno-cleido-mastoid muscle, and on examining his anus we find on the flexor aspect of each, and going around toward their extensor surfaces, a profuse eruption, vesicular, squamous and papular. What is it? Beyond a doubt, syphilis. There never was a disease in the world which presented such an appearance as you see before you, except syphilis. It has manifested itself on this man's skin in three several types, constituting what is called the polymorphic variety. The glands involved in the present case are not those most frequently affected. Generally we look for what is called post-cervical adenitis, or, to speak in plain English, kernels in the back of the neck. But in the present case I find none. This does not surprise me, for I know how varied may be the manifestations of syphilis, what different parts of the body may be attacked by the hydra-headed monster.

Occasionally, a man comes into my office and says: "But, doctor, there is something strange about my trouble; I never heard of a case acting like this." To which I always reply, "I

never saw two cases of syphilis exactly alike." Nor did I. So much depends upon a patient's constitution, and the circumstances with which he is surrounded, that no man can beforehand just how he will be affected by this disease.

The patient before you is deeply impressed with the poison; he is in a miserable, pulled-down, cachectic condition, and must be built up with tonics and stimulants. At the same time I will have him given the sirop-Gibert as a specific, hoping it will aid in freeing his system from the poison.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF NEW YORK.

CLINIC OF WILLIAM A. HAMMOND, M.D.,
Professor of Diseases of the Mind and Nervous System.

REPORTED BY WORTHINGTON MYERS, A.M., M.D.

Cerebral Congestion.

(Concluded from page 360.)

Cerebral hyperæmia, the first stage in a majority of cases, and very rarely arrested in the first or hyperæmic stage, seldom progresses further, and if so, is developed by symptoms much more serious in their character. In the hyperæmic stage the vessels have lost their elasticity, thereby preventing the access of blood to the head.

In the treatment the measures adopted are both sanitary and hygienic. Hygienic—first, removal of the cause. This is in a measure dependent upon the intellectual condition of the patient. Emotional disturbances must be avoided. If the patient continues to do those things which caused the attack, or which aggravate it when it does exist, no amount of sanitary precaution will cause the cure or removal of the disease. Exercise in the open air is most beneficial. A brisk walk, so as to draw the blood from the veins, and where all the muscles are brought into action, tends to draw the blood from the head. The patient must have sound and refreshing sleep. His room must not be kept at a temperature exceeding 60° in winter. The pillow must be neither too high nor too low. The head must be on a line with the body; if not, an angle is produced in the neck, which impedes the return of blood to the head. A round pillow should be used. The Japanese have the best ideas concerning this. They are constructed so as to fit in and fill up this space, and are admirably adapted. Attention should be paid to diet, not only as regards quantity, but quality of the food. Persons with weak stomachs, especially those subject to dyspepsia, suffer from cerebral congestion, caused by the pressure on the abdominal veins, thereby impeding the return of blood to the head. The food must be nutritious, not overstimulating, but of a character which will create healthy blood without exciting the action of the heart in too great a degree.

Medical Treatment.—Medicines must be employed which diminish the amount of blood to the head. Now, the bromides, in conjunction with ergot, possess the property of directly diminishing this amount of blood without producing anemia. Of the bromides we have sodium, potassa and lithium, but no choice is requisite to accomplish this. They all possess the same property, viz., of diminishing the amount of blood to the brain and contracting the cerebral blood vessels. We do not wish to produce the condition, *bromism*, which indicates congestion, but merely to reduce cerebral hyperæmia. Now, in cases like epilepsy, for instance, it is different; here we give larger doses, so as to produce the condition, *bromism*. In cases of this kind I place the patient upon the following—

R. Bromid. sodium,	3j
Ex. ergot, fld.,	3ij
Pepsin,	
Pulv. charcoal, "saccharated,"	3iij
Water,	3vj.

of which a teaspoonful is given every three or four hours. This treatment should be persevered in for three or four weeks. He will tell me he feels better in a day or two, but the action must be still kept up. The cerebral vessels will gradually relax in their ordinary size. Nervous dyspepsia, gastric derangement, over-exertion of the mind, etc., are all most speedily benefited by this treatment.

Should the disease be caused by malaria, the treatment must be in accordance; but if caused by emotional disturbance, the above treatment is most effective. Of the local applications, the actual cautery is the best, and should be applied to the back of the neck, and repeated once in ten days. The old custom was to place keys and cold substances down the back, for the purpose of controlling hemorrhage. Here they acted on the sympathetic circle and thereby contracted the blood-vessels, and they in turn contract the cerebral vessels. The same action is produced by the actual cautery.

The action of any medicine which acts powerfully on the system is debilitating. The bromides produce, at first, an uncomfortable feeling. Their ultimate action is most beneficial. If you would give him strychnia, quinine, or any nerve tonic, you would not succeed in getting the blood out of his head. To control this action, the most efficient preparation is the following—

R. Zinc phosphide	
Nux vomica,	33 grs.x.

To be made into thirty pills, one three times daily. If malarious, give him, in addition, quinine with hydrobromic acid. The effect of quinia to increase the quantity of blood in the brain is controlled by the acid. In the fully developed form of the disease, the treatment does not materially differ, only more active. Cold to head, cups to back of neck. Bromides

fully and freely, and, if necessary, five or six ounces of blood from the arm, etc.

If the bowels are constipated, open them; not otherwise. The best and simplest cathartic which I have employed for years, is composed of ox-gall and extract aloes, fifteen grains each, with three grains podophyllin. One pill to be taken every night or every other night. This preparation or combination will relieve constipation in any form. The ox gall is a mild and pleasant purgative, and softens the feces. In this disease there is a tendency of the feces to become hardened. If you have a quantity of feces low down in the colon, then use this as an injection.

Lumbago.

Here is an illustration of a common affection, which we will be often called upon to treat, viz., lumbago. The question arises, What is lumbago? Some authors locate it in the muscles of the lumbar region; others in the nerves, as brachialgia in the brachial nerve, sciatica in the sciatic nerve. Lumbago is simply a slight inflammation of the neurilemma of the nerve. In some cases we find it red, in others no change whatever, upon examination. In sciatica we sometimes have atrophy in the limb.

This man has been a hack driver. Such persons are peculiarly liable to this affection, from exposure, and the position they occupy on the box, which tend to aggravate it, as does everything which tends to bring these muscles into action in contact with the nerves, thus developing a powerful paroxysm. He has taken mercury, potass. iodide, etc., with local applications, but without benefit.

We will give him hypodermic injections of $\frac{1}{4}$ -grain morphia. No better plan of treatment can be pursued in these affections, but they must be continued. The dose must be increased each day. Commence with $\frac{1}{4}$ grain and inject, whether there is pain or not, and increase this until you have reached one or two grains, when you will find he will bear the last as well as the first; then commence and reduce the quantity each day, until you have reached the starting point, viz., $\frac{1}{4}$ grain; and then stop.

In sciatica it is a little more obstinate. Now, here it makes all the difference where you make your injection. Endeavor to reach the nerve as nearly as possible, and this you can best do by making your incision midway between a line drawn between the tuberosity of the ischium and the great trochanter. It greatly facilitates the treatment to inject at this point. In lumbago we inject at the seat of greatest pain. In sciatica place the nerve upon a stretch; that is, cut down upon it, place the handle of your scalpel under it, and gently lift it up. It will stretch about an inch; then press it very lightly, and you will radically cure the patient. This is useful in extreme cases, which have resisted all other treatment. It will be found beneficial in all neuralgic affections. We will place a hypodermic injection and increase it each day, and apply the actual cautery to the small of the back on each side of the vertebral column.

EDITORIAL DEPARTMENT

PERISCOPE.

Metalloscopy and Metallo-therapy.

These pseudo-therapeutical methods still continue to attract considerable attention in Europe. Though distrusting the value of the results, we present them to our readers.

Professor Eulenburg, of Griefswald (*Ueber Metallotherapie, Deutsche Medicinische Wochenschrift*, Nos. 25 and 26), has recently made some researches on the subject. He repeated Regnard's experiment, by bringing a galvanometer into connection with the skin, applying the metal plates, and then causing electric currents to pass between the two. After further experiments on six individuals, he came to the following conclusions: 1. The same plates, applied to various healthy individuals on the same parts of the skin, and under similar conditions, appear to be more active in some cases than in others, sometimes having almost no effect. 2. The galvanometric intensity of the metals is by no means alike in all healthy individuals; zinc, more effective than gold in some persons, is less so in others, and *vice versa*; the proportions even vary at times in the same individuals (owing, perhaps, to some alteration in the dampness of the skin).

Dr. C. Westphal (*Ueber Metalloskopie, Berliner Klin. Wochenschrift*, No. 30, 1878) has also made researches on the same subject, and almost at the same time as Eulenburg. After making himself personally acquainted with Charcot's experiments, and selecting like cases (effeminate, hysterical, hemi-anæsthetic individuals), he began by using silver coins, and arrived at conclusions similar to those of Charcot—namely, the return of sensibility, sometimes local, sometimes affecting the entire side of the body; and also the "transfer," i. e., with increased sensibility of the anæsthetic spot, a corresponding diminution on the symmetrical spot of the opposite side of the body. He then tried the application of iron, magnetic stone, copper covered with varnish or sealing wax, and bone-markers, and obtained similar, although somewhat weaker, results. His assistant, Dr. Adamkiewicz, produced them also by means of mustard plaster, while hot water and the electric brush were used without effect. Westphal says, in conclusion, that one must admit the fact that sensibility is restored by means of metallic plates, but he doubts whether (as Eulenburg says) it takes place through galvanic currents, inasmuch as non-metallic plates produce the same results. He thinks, in opposition to Burq, that no absolute idiosyncrasy for special metals exists, because two metals may be effectual in one and the same patient.

The therapeutic result is at the best but limited and temporary.

M. Thennes reported to the Biological Society, at the meeting of October 12th, that he had ascertained, in the cases of two hysterical patients, that thermal agents are capable of acting in the same way as metals and currents. With applications of ice in one case and of hot water in the other, the hemi-anæsthesia, achromatopsia and contraction disappeared.

A case is given in the *British Medical Journal*, October 12th, of hemi-anæsthesia treated by the metals, under the care of Dr. Bennett. This practitioner has made a large number of experiments on this and others of a similar nature, the details of which, and his conclusion as regards metallic treatment, he proposes soon to publish. He pointed out to several who witnessed some of the facts here described, that it is obvious that the phenomena following external applications to anæsthetic skin is perfectly genuine, and the manner in which the experiments were performed certainly gave little opportunity for voluntary deception on the part of the patient, or partiality of theory on the part of the observer. He remarked that, so far as his experience went, the phenomena were not due to any special metallic action, as the application of wood was followed by all the results attributable to the metals. As far as he could judge from his own observations, the changes were due to the efforts of expectant attention, and the result of the manipulations acting on the body through the mind. This is not in discord with known facts, and more especially with such a symptom as anæsthesia, which is well known to be so changeable and so easily affected by the emotions. This is rendered all the more probable by the fact that the large majority of subjects treated successfully in this way are women of a hysterical and impressionable temperament.

On the Employment of Digitalis.

Professor Teissier, of Paris, in a recent discussion, said that after a clinical experience of thirty-five years Professor Teissier has come to the conclusion that there are few affections of the heart in which it is not a suitable medicine, and that it becomes in turn sedative or stimulant, according to the condition of the heart. He does not regard either hypertrophy or aortic affections as contraindicating its employment; and as to the diseases of the right side of the heart, they can but benefit by a remedy which both increases the *vis a tergo* and increases the nervous circulation. Professor Gubler observed that digitalis is truly a tonic of the heart, although its tonic action may be only indirect. The cases in which it succeeds best are those

where the cardiac disorders are most considerable, the increased energy being accompanied by debility of the organ. Every one is aware that, as regards force, there is a great difference between the impulse of the heart and the arterial pulse, all having seen cases wherein, while the heart beats violently, the pulse remains small and feeble. It is in such cases that tonic action is advantageous, digitalis proving useful when the cardiac action is the dominant feature. The true contraindications are found in the fundamental feebleness of the heart and irregularities of rhythm—what may be termed cardioplegia. Professor Gubler considers that sphygmographic tracings are highly deceptive, the positions of the instrument with relation to the artery entirely changing their character.

Electro-Puncture in Aneurism of the Aorta.

Drs. Dujardin-Beaumetz and Proust read a memoir at the recent meeting of the French Society for the Advancement of Science, in which they state that, as the result of the employment of electro-punctures in six cases of aneurism of the aorta, they are enabled to conclude that Cinielli's procedure, as they have modified it, has become a simple operation unattended with danger, and constitutes an efficacious and rational mode of treatment. In one case, described by Dr. Proust, the patient having died from hemorrhagic infiltration of the lungs, it became possible to show that a thick layer of fibrinous coagula existed in the portion of the aneurismal sac where the needles had been applied. This case showed that the electro-puncture could be successfully practiced in patients whose general condition was a very grave one; that the coagula were deposited at the point of application of the positive pole; and that M. Gaiffe's improved instruments should be employed. M. Teissier observed that several experiments which he had performed corroborated the above conclusions, for he had found sphacelus produced in the arterial wall at the point of application of the negative pole, while several accidents arose during the application. But the application of the positive pole never gave rise to any accident, so that Drs. Dujardin and Proust have good reason for modifying Cinielli's procedure by employing only the positive pole as the active agent, applying the negative one to a moistened plate with a broad surface placed at a distant part of the body.

—The physicians of Long Branch, N. J., have recently organized a medical association. During one of their meetings a query arose as to the number of people who never paid their doctors' bills, and a committee was appointed to investigate the matter. It was found that there are three hundred families who do not and have not for years paid a physician, but call upon first one and then another, as occasion requires. It was determined to organize a protective union.

REVIEWS AND BOOK NOTICES.

NOTES ON CURRENT MEDICAL LITERATURE.

—Dr. J. B. Marvin, in a reprint from the *American Practitioner*, gives a sketch of yellow fever as it appeared at the Louisville Hospital last summer, of which institution he had charge. He enters carefully into its diagnosis, pathology and treatment. On the latter point he does not suggest anything new, following the old plan of commencing with diaphoretics, a purge, and quinine, a plan, we may add, which has proved the reverse of satisfactory in cases of the continued type.

—A thoughtful report on the care of the insane appears in the *Transactions of the Pennsylvania State Medical Society*, and as a reprint. The author is Dr. John Curwen, of Harrisburg. He sums up the question of how to occupy insane patients in the following words:—

"The conclusion of the whole matter may be briefly summed up in this, that while admitting the great benefit of occupation, and using every effort to induce the insane to engage in it, the practical solution of the difficulties incident to the work must be left to the best judgment of those to whose immediate care the insane are committed, who must be admitted to have a greater interest in the decision than those who look on at a safe distance; describing in glowing terms what should be, but never giving any assistance or counsel in regard to the best means of overcoming the difficulties which beset the subject."

—Prof. F. H. Gerrish, of Portland, has republished an oration delivered before the Maine Medical Association, on the duties of the medical profession concerning prostitution and its allied vices. His proposals are exceedingly theoretical and unpractical. While fully impressed with the necessity of doing something, he resolutely avoids the only straightforward and sensible plan, the one so often recommended in this journal, that of registration and examination. It is to be regretted that timidity and prejudices have so much weakened Dr. Gerrish's opinions.

—An interesting resumé of medication, addressed to the sympathetic nerve system, especially as illustrated in the exhibition of the

alkaloids muscarin, pilocarpin and atropin, appears in the *Virginia Medical Monthly*, by Dr. J. J. Caldwell, of Baltimore.

BOOK NOTICES.

Lectures on Localization in Diseases of the Brain.

By J. M. Charcot, Professor in the Faculty of Medicine of Paris. Edited by Bourneville. Translated by Edward P. Fowler, M.D. New York, Wm. Wood & Co., 1878, pp. 133.

Lectures on Bright's Disease of the Kidneys. By

J. M. Charcot. Collected and published by Drs. Bourneville and Sevestre. Translated by Henry B. Millard. New York, Wm. Wood & Co., 1878, pp. 99.

The name of Professor Charcot is intimately allied with some of the most fruitful studies of the pathology of the nervous system. He stands, with Brown-Sequard, at the head of the list of French investigators in this difficult branch. It has been a matter of surprise to us that none of his works have previously been introduced to the American public.

His work on localization of cerebral diseases begins with a series of most carefully written chapters on the anatomy, histology and nutrition of the various portions of the brain. The different lobes and convolutions are laid off and illustrated by numerous wood cuts and diagrams inserted in the text. Having in this minute manner studied the normal aspects of the organ, the author proceeds to a study of the diseases, with a special purpose of defining their symptoms in a clear language, and bringing them into relation with the portions of the brain which manifest lesions.

The chapters on the optic nerves, their origin and lesions, and the relations of these to the defects and peculiarities of vision, will have a high interest to ophthalmologists.

The general result of Charcot's researches is in favor of the cross action of lesions of the cerebrum, those in the left lobe affecting the right side of the body, and the reverse; in opposition to the views recently so vigorously urged by Brown-Sequard.

He also seems to have definitely established that the locations of cortical lesions which produce secondary degenerations correspond to the locations of the psycho-motor centers.

The second work we have mentioned above

will probably appeal to a wider class of readers. The pathology of those multiform degenerations of the kidneys which we group under the title of Bright's disease has long been a mooted point.

After several introductory chapters of an anatomical and physiological character, M. Charcot divides Bright's disease into the three forms of parenchymatous nephritis, interstitial nephritis, and amyloid degeneration. The first mentioned he divides again into the acute and chronic forms, and he insists on fundamental differences between either of these and scarlatinal nephritis. The latter he classes as a variety of interstitial nephritis. In regard to amyloid kidney, while he points out that there is no pathognomonic indications of its presence, he classifies the symptoms so clearly that the reader will not find it difficult to recognize.

Two admirable colored plates accompany the book.

Essentials of Chemistry, Inorganic and Organic.

For the use of Students in Medicine. By R. A. Witthaus, A.M. M.D., New York. Wm. Wood & Co., 1879. 18mo, pp. 257.

This is a sort of vest-pocket compendium of chemistry, arranged in the form of question and answer, so that the student can readily post himself on the inquiries likely to be propounded to him by the quiz master or the professor. If he makes himself able to answer the something more than a thousand questions it contains, we do not doubt he will pass with flying colors.

The Illinois State Medical Register for 1878-79.

Published annually, under the supervision of the Chicago Medico-Historical Society, with the co-operation of the Illinois State Medical Society. D. W. Graham, A.M. M.D., editor. Volume IV. Chicago. W. T. Keener, 94 Washington street, 1878. pp. 200.

This State directory may be recommended, for form, accuracy, and good taste in its preparation, as equal to any in the United States. We have repeatedly insisted on the advantages to the profession arising from such publications; and when every State in the Union imitates Illinois, Massachusetts, and a few others, in this matter, the profession will have taken a long stride toward that unity of action which is essential to securing its utmost efficiency for the public welfare.

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Medical and Surgical Reporter.

A WEEKLY JOURNAL,
Issued every Saturday.

D. G. BRINTON, M.D., EDITOR.

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1879.

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THE VALUE OF DIAGNOSIS TO SANITARY SCIENCE.

The grand old doctors had a high opinion of diagnosis, though to our advanced thought they seem to have known little about it. *Medicus sufficiens ad cognoscendum morbum, sufficiens est ad curandum*, was their sublime boast. Perhaps it was because, after all, they could so rarely recognize a disease when they saw it. It seems incomprehensible how they could have overlooked the significance of heart and lung sounds, when there is hardly a hospital that does not present cases that you can auscult at three feet distance.

At any rate we can no longer pretend to cure all or even a respectable fraction of the diseases we can diagnose. Failing to cure them, we can, however, with some show of reason, say we can prevent them. Here is where a nice diagnosis stands vastly to our credit. Modern sanitation is, in fact, built on modern diagnosis. This was well set forth recently in an article by Dr. J. N. RADCLIFFE, in the *Practitioner*. He says:—

"The supreme merit of the discrimination of typhoid from typhus in relation to hygiene, was the clear and decisive proof then furnished that a true sanitary method must rest upon the discrimination of diseases; or in other words, that the fundamental principle of true sanitary method was the discrimination of disease.

"The recognition of this principle has governed all the sound work in hygiene since the period of which I have been speaking, as I shall have occasion to show in my next lecture. Indeed, true hygiene is only possible in proportion as clear and accurate knowledge of disease is obtained. Hygiene, the preservation of health, is in reality the art of preventing disease. In the earlier days of this art it was believed that health could be maintained and diseases avoided in the gross. Experience has taught us otherwise, and that like all arts resting upon a scientific basis, hygiene, to be practiced successfully, must be founded on a scientific method. And such method consists in dealing with the particular conditions which favor the assaults of particular diseases in detail."

These conditions have been carefully enu-

merated by Dr. ARLIDGE, in his recent address before the British Medical Association, so far as they refer to manufactures and the arts, to what are called "trade diseases."

From a comprehensive view of the circumstances directly answerable for the production of disease, he constructs the eight following classes, some of them of wide-spreading influence, others of very limited operation.

1. The evolution of dust.
2. The evolution of unwholesome vapors and gases.
3. Materials of an irritant or poisonous nature acting through the system or only locally.
4. Over-heated air, whether dry or laden with moisture.
5. Compressed air and rarefied air.
6. External conditions acting upon the organs of special sense.
7. Over-exertion of particular parts of the body.
8. Mechanical appliances productive of bodily injury.

The most widely spread source of disease flowing directly from the labor pursued is assuredly the evolution of dust. Its presence and action are observed in all textile factories; in potteries; in mining, whether for coal or metallic ores; in cutlery manufacture; in cutting and polishing stone, ivory, and mother-o'-pearl; in the grinding of flour; and, in fact, in many other small trades that need not be specified. The other causes are, however, wide reaching, and not a physician but can recall cases brought about by them.

It will be noted that all or nearly all of them are preventable; and were the attention of inventors more prominently called to the matter, and stimulated by offers from those interested in the good of the community, no doubt there is hardly a trade but could be prosecuted innocuously. There is here a field for practical philanthropy which asks cultivation, and the benefit of any discovery in which will extend world wide. As it is an excellent mode of stimulating investigation, will not some one offer a "Prize" for the most useful discovery in this branch?

NOTES AND COMMENTS.

The Importance of Medical Observation in Rural Districts.

An esteemed correspondent, long identified with medical instruction, writes us, from a western city:—

"You have often appealed to country physicians for more facts and opinions from their experience. There is a large field that is not cultivated, or a great number of facts and observations that, if recorded, would be new, and as important as any found in the city. The practice of medicine and surgery has entirely different phases in city and country."

We avail ourselves of this opportunity to repeat the opinion referred to. Take, for instance, the very important class of malarial diseases. They are hardly ever seen in the great cities; never, with the physiognomy they present in country localities. Again, the adynamic type, so constantly met with in disease in cities, is far less rare in many healthy rural districts. Pneumonia has neither the same onset nor the same history in the two. As the vast majority of physicians and patients are not residents of cities, it is certainly most fit that the diseases of the residents of the country should receive special attention, and this can only be done by the physicians who are their medical attendants.

The Diagnosis of Early Hip Disease.

Quoting a thesis of Dr. Ollivier, a writer in the *Boston Medical and Surgical Journal* says—

Mistakes in the diagnosis of hip disease are, unfortunately, not uncommon. The results of such mistakes are deplorable.

It has been said that every case of hip disease passes through a stage when it is called "rheumatism." It is precisely at this stage that a diagnosis should be made.

Cases are not unfrequently seen where a diagnosis of "incipient" hip disease is made, although the disease has progressed so far that suppuration of the joint is imminent; it being apparently the opinion of some that hip disease is not present until grating can be felt on manipulating the joint under an anæsthetic, or, in other words, until the disease has progressed to a dangerous extent.

The liability to error will be less if the following facts be kept in mind:—

1. Serious disease at the hip joint may exist

when no pain is complained of, and when no tenderness can be discovered.

2. Hip disease may be present, although the motion at the hip joint is quite free.

3. If the motion at one hip joint is more limited than at the other, hip disease must always be suspected, and the symptom regarded as highly characteristic of hip disease.

4. At the earliest stage the limitation of motion most readily recognized is in the direction of extension.

On Opening the Abdomen to Relieve Intestinal Obstruction.

In a discussion on this subject, Mr. Teale, an eminent London surgeon, said—

"I must confess to having myself a strong bearing toward the operation, on the grounds both of theory and experience. I have six times opened the abdomen in apparently hopeless cases of obstruction of the bowels, and I do not consider that in any one of them the chance of recovery was taken away by the operation. The operation is justified on two cardinal grounds:—

"1. That the simple opening of the peritoneal cavity, in order to search for the cause of obstruction, is not of itself a dangerous operation.

"2. That there are many cases of obstruction of the bowels which must prove fatal, unless relief can be given, which can only be rightly directed by means of exploration of the abdominal cavity.

"As to the harmlessness of opening the peritoneal cavity, I need hardly remind you how constantly this is done in operations for hernia."

Alum in Baking Powders.

In a recent number of the *Scientific American*, Mr. Henry A. Mott, who had lately been appointed chemist by the United States Government for the Indian Department, publishes the result of his investigation into the quality of baking powders as they are supplied by the large manufacturers. He ascertained, he says, that 50 per cent. were adulterated. Every powder he could find in the market he submitted to analysis. He examined forty-two—twenty-nine of them came from various sections of the country, and had been offered to the Department; thirteen were procured from various grocery stores in New York.

The best powders are composed of bitartrate of potash, tartaric acid, carbonate of ammonia

and bicarbonate of soda, bound together by a little starch.

The injurious powders are composed of alum and bicarbonate of soda, and often contain terra alba (white earth), insoluble phosphate of lime, etc. The effect of alum when taken internally has been shown by Wilmer and others to produce dyspepsia, constipation, vomiting, griping and even inflammation of the gastro-enteric mucous membrane, as it is a powerful astringent acting chemically on the tissues.

The Psycho-motor Centres.

A remarkable, and at the same time extremely interesting, paper appears in the October number of *La Revue Mensuelle de Médecine et de Chirurgie* (Baillière), upon "The Psycho-motor Centres of New-born Animals." The author is Professor de Tarchanoff, of St. Petersburg, and his experiments go to prove that these psycho-motor centres exist in certain of the lower animal, and can be electrically excited even before birth. This doctrine being so diametrically opposed to the generally accepted theories, the students of neurology will await with interest more full details on the subject.

Sanitary Legislation.

A correspondent in Tennessee requests us to remind all physicians that now is the time to urge upon political bodies active sanitary legislation. Delay will allow the impression of the late scourge to grow dull. Active work now will secure appropriate preventive measures. Let each physician make it a personal duty to do something in aid of this, and at once.

Effects of Winds on Health.

Mr. Laughton, of Greenwich, says, in a late lecture—

The warm air of Switzerland is more probably the tail-end of the air over the Atlantic Gulf Stream, which comes to the hills, is cooled, deposits its moisture, is dried, and, becoming warmer from condensation of the moisture, ascends, then descends the other side of the hills, and, being very dry, eats away the ice. Such winds have been observed elsewhere; that in North America, from the Pacific, having crossed the Rocky Mountains, is very dry, and produces the prairies. It dries up to tinder the grass and wood everywhere. The boundary

line of the prairies sways backward and forward from year to year.

Cold winds, on the other hand, are equally startling in their effects; such as the cold winds of Sydney—the "Southerly Buster"—and of Texas, and Minnesota, where the temperature of the air may in a few minutes fall 30 or 40 degrees Fahr. In South America the cold winds are felt the whole length of the continent, and kill the people, cattle, and even fish in the rivers and lakes. The cold wind of England in May has been long known. Watery vapor in the air acts as a heat.

The Contagion of Scarlatina and Diphtheria.

Dr. E. M. Snow says, in his last report as Registrar of Providence—

Whatever fanciful theories we may indulge in, and whatever may be our belief in regard to the personal contagion of scarlatina and diphtheria, there is no certain nor probable evidence that either of these diseases usually spreads in the community through contagion. It is certain that diphtheria is a filth disease, and usually spreads from the influence or effects of foul air arising from localized filth. The contagion of diphtheria never produced any extensive prevalence of the disease without the presence and aid of this local filth, and there is reason for believing that the disease often arises and becomes prevalent without the aid of any personal contagion. The tendency of belief at the present time is that scarlatina is also a filth disease, and very similar in the conditions of its prevalence to diphtheria. Pure air, personal cleanliness and abundant sunlight are the best preventives of these as well as of all other filth diseases.

Curious Form of Insanity.

Dr. W. W. Ireland says, in the *Journal of Medical Science*: Instances are by no means uncommon where the reasoning faculties are much deranged, as evinced by extravagance in speech, but where the power of doing complicated work and estimating weight and distance are well preserved.

A patient once, at Musselburgh, and now in the Roxburgh District Asylum, has often struck me as exemplifying this in a remarkable degree. The man pours forth a torrent of words, sometimes stating the wildest delusions, sometimes giving vent to the most uncouth combination of words, in astonishing variety, where one can

perceive no connection, or a strange association, between the words, or the words and the ideas, often in an excited or frenzied manner, and in the midst of all this mad talk he will go on working in a calm, methodical way; for example, he will plant out leeks, tracing the lines regularly, and putting in each plant at an equal distance from the other. I do not remember ever to have heard this man make a coherent remark, but I saw an ingenious snare for birds which he had made, and he once showed me two blackbirds which he had caught.

The Form of Hystero-Epilepsy.

M. Charcot, in a paper read before the Société de Biologie July 15th (*Progrès Médical*, July 27th), shows that hystero-epilepsy, hysteria major, presents a type which, apart from secondary variations, remains always identically the same in its chief features. The attack can be divided into four periods preceded by an *aura*. The first stage is epileptoid, and does not differ from the comital malady except in being susceptible of control by ovarian pressure or the electric current; it passes through a tonic state, to which succeed clonic spasms. After a temporary remission the period of convulsions commences, at the time when the first hallucinations are produced. The third stage is that of passionate attitudes; the face expresses joy, terror and pleasure, the patient recalls her friends or remembers her enemies. In the last stage the patient, having come again to herself, is still under the influence of the temporary hallucinations; then, little by little, these latter phenomena disappear.

Mechanical Methods of Relieving Hiccough.

Dr. Belot, in his monograph on yellow fever, says that hiccough may be arrested by compressing with the fingers the phrenic nerve on the level of the os hyoid. In other instances it yields to the application of cold water on the stomach, to opium, to belladonna in small doses, to ice swallowed in small pieces.

In an obstinate case of hiccough, which had resisted all the various means tried, Dr. Faivre compressed the epigastrium forcibly by means of a tourniquet. In five minutes the hiccough, which had lasted uninterruptedly for fifty days, had completely ceased. At first it reappeared on the compression being relaxed, but afterward was permanently arrested.

CORRESPONDENCE.

An Unusual Midwifery Case.

ED. MED. AND SURG. REPORTER:—

I was called, Monday, September 16th, 1878, at 3 P.M., to Mrs. M., aged forty-two, in labor for the sixth time; found her on her knees on the floor, waited upon by two experienced female attendants. On making an examination per vaginam found os well dilated and child presenting vertex right occipito-anterior; strong expulsive pains coming on; the child born about 3½ P.M. Cord found so short that it (the child) could not be taken entirely from the vagina until the cord was tied and cut. Put the woman in bed and introduced hand after the placenta, when I found another child lying across the womb, presenting breast and arms, with both hands hanging in the vagina. Strong pains coming on, I had a great deal of trouble in introducing right hand and getting hold of right foot. At this time, fearing some trouble, I sent for my old friend, Dr. N. M. Hoover. But, persevering in my efforts, I secured the right foot, brought it down, applied a loop over the ankle, and, by pulling on the loop and pushing hands and arms back, succeeded in delivering child about 4 P.M.; child dead. Waiting a few minutes until the woman rested, introduced hand and removed the placenta; found the placental end of the first cord two and a half inches long and partly torn away from the placenta; the other cord was of the usual length. Applied bandage. Woman rested well after her labor; left her in good condition and in good hands at 5 P.M. At 7 P.M. messenger came in haste and said Mrs. M. was suffering great pain. Dr. Hoover and I went down (distance one mile from town) and found her suffering excruciating pains in right shoulder; would change to the left side, right side, left shoulder and neck; were intermitting in character; would be very severe in one part for a few minutes, then leave for about the same length of time, and come again in the same or another part. Respiration appeared not to affect the pain in any way.

On consulting decided to get her under the influence of morphia as soon as possible; applied large hop fomentations over the regions where the severe pain is felt, introduced the hand into the vagina, turned out the clots, found the womb contracted down, pulse 140 and weak; decided to give her stimulants and beef tea at intervals of fifteen minutes, also half a grain of morphia sulphate, at intervals of half an hour, from 8 P.M. until 11½ P.M., when I stopped it and gave ten grains quinia sulphate, but still no diminution in frequency or severity; until ten minutes past 2 A.M., Tuesday, when they left and did not recur again; patient very much exhausted; became very drowsy; had to be waked up every fifteen minutes to take stimulants and beef tea, when she would relapse into her former stupid condition. Pulse at 6 A.M.

reduced to 120 and stronger, temperature, 102°; drew urine during forenoon; left her at 1 P.M., to visit another patient; returned at 6 P.M.; found her nearly out of that stupid condition; recognized friends, felt much better; temperature 101½, pulse 110; drew urine; lochial discharge becoming offensive, had bed removed to middle of room and free ventilation, with removal of everything about her person that was soiled with the discharge; bowels becoming tympanitic applied large hop fomentations and gave an injection of tepid water and turpentine, which, being retained, gave her another at 12 M., which was also retained; at 4 A.M. gave her another, after which she passed off some of the water of the last injection, with considerable wind accompanying it; complained of a feeling of fullness about the bowels; temperature 100°, pulse 100 at 6 A.M., Wednesday, feeling very much better. At 10 A.M. had a very large and very offensive passage from the bowels which was of a dark-brown color. At 11 A.M. had another offensive passage; pulse ran up to 140, thready; temperature 103°; bowels very much distended. 12 M., temperature 103½; pulse 150; very weak. 1 P.M., temperature 104; pulse 160, hardly perceptible; continued sinking until 10 minutes of 2 P.M., when, turning on her right side, a few spasmodic contractions of the muscles of the left side of the face and all was over. There was not more than the usual hemorrhage; her previous labors had all been easy; her health had always been very good.

On examination of the second child, found the right humerus broken and some contusions about the neck. Could the expulsive pains have been strong enough to do this (they were very strong)?

Was the cause of the second child's death due to the rupture of the placental end of the first cord?

What was the probable cause of those neuralgic pains?

What was the immediate cause of death?

B. A. HENLEN, M.D.

North Hope, Pa., Dec. 10th, 1878.

Maternal Impressions.

ED. MED. AND SURG. REPORTER:—

I notice an article in the REPORTER, by Dr. Snively, on "Maternal Impressions." I think the true interpretation of such abnormal fœti is as follows: A reversion by remote heredity to some former ancestor of the brute creation. It is through such exceptional individuals and the "rudimentary organs" that we frame a law of descent and development, *a la* Darwin. We see the same thing in those moral monstrosities in which, now and then, the wild beast ferocity of some precocious criminals is but the hereditary cropping out from remote savage ancestors many thousand years ago, possibly dating from some transition stage of lower brute to higher man. As this could only be accomplished by a perpetuity of transmitted

cell impressions, which after many years of favorable conditions and environment at last horrify us with a glimpse of so dark a possibility—a character destitute of one spark of human feeling and given over wholly to brutishness—I think if our religious teachers would give over their theories of “total depravity,” and give more attention to what I must call brutal heredity, they would find that the race could be better improved by conscious selection in marriage than could be accomplished by all the curses and anathemas that ever issued from the rostrum of Mr. Talmage or Mr. Spurgeon. Yours respectfully,
Westtown, N. Y. A. J. JESSUP, M.D.

Case of Retarded Vaccination.

ED. MED. AND SURG. REPORTER:—

On March 1st, 1876, I vaccinated Ida M. with virus taken from the cow, in four places on the left arm, near the insertion of the deltoid muscle.

I called four days after, found one of the scarifications very red, but there was no sign of a papule; the others did not show any signs of taken; the redness of the one continued for five or six days then disappeared.

On the 22d of March they all looked about the same as when I scarified them; I told the mother, as they had not taken, I would call in two weeks and revaccinate her.

I called at the appointed time, but the mother declined having it done, as she was very busy, and did not want the trouble then. She asked me to call again at my convenience.

I called four weeks after, which made it eight weeks from the time I had vaccinated her, when, to my surprise, I found that the scarification which had been red had formed a papule; it passed into a vesicle, went through all the stages of a perfect vaccine scab, leaving a well marked cicatrix. Her arm was very much swollen. She had considerable fever.

The other scarifications did not take.

JOHN R. PARTENHEIMER, M.D.

546 North 10th street, Philadelphia.

The New California Remedies.

Several correspondents have asked for the republication of Dr. Gibbons' article on the new remedies introduced by Parke, Davis & Co., of Detroit, and largely advertised.

That firm has written us, asking a suspension of judgment until they can make certain explanations. We have called their attention to the fact that not only Dr. Gibbons, but also the St. Louis *Clinical Record*, has thrown grave doubts on these remedies with fantastic names, *yerba reuma*, *cascara sagrada*, etc., and its strictures must also be met.

Should Parke, Davis & Co. be able to answer fairly these criticisms, our columns will be open to them. If they fail to do so in a reasonable time, we shall republish Dr. Gibbons' article as a warning to the profession to avoid these drugs.

NEWS AND MISCELLANY.

Extracts from the Bulletin of the Public Health Issued by the Surgeon General United States Marine Hospital Service for the Week Ended December 7th, 1878.

Yellow fever has almost wholly disappeared from the Mississippi Valley. In New Orleans 4 deaths were reported during the past week. The total number of cases up to date is reported as 22,600. There was one death and one new case at Port Gibson, Miss. One new case (a returned refugee) at Meridian, Miss.; one death at Memphis on December 6th; 3 cases and one death at Mobile, for week ending December 10th.

MOBILE.—For the month ended October 31st there were 132 deaths, 40 being from yellow fever; 12 from phthisis.

HAVANA.—During the week ended December 7th there were 10 deaths from yellow fever, and 12 from small-pox.

ST. THOMAS.—The United States Consul telegraphs that yellow fever has appeared in the Island.

GERMAN EMPIRE.—No statistical returns received. Diphtheria is prevalent in various portions of the Empire, and public attention has been directed toward means of prevention of this scourge by the prostration of 6 members of the Royal family of Hesse with the disease, 2 having died.

AFRICA—TANGIER.—During the 4 weeks preceding October 5th, there were 1069 deaths at Casa Blanca, from cholera, 163 from small-pox, 32 from typhus fever; the total deaths from these diseases being 1264 in a population estimated at 5500. The Consul reports that no note is taken of deaths by famine, accident, or common diseases.

INDIA.—In Madras enteric fever of a fatal type is very prevalent in the native portions of the city, which are described as extremely filthy, and quite devoid of sanitary regulations. In 1876-77 the deaths from small-pox in India numbered 200,000, and in the preceding two years, 500,000. During 1875-76 only 2 deaths from this disease occurred among 120,000 European troops, the exemption being clearly due to vaccination.

The latest returns from the following cities give the annual death-rate per 1000: for Madras at 52; Alexandria 50; Cracow 39; Bombay 37; Munich 34; Calcutta 33.4; St. Petersburg 32; Rome 28; Vienna 27; Berlin 26; Paris 25; Rotterdam 25; Hamburg 23; Geneva 20; Copenhagen 19; Stockholm 15.

—The Surgeon of the Virginia Penitentiary says, in his annual report, that of 350 convicts hired to the James River and Kanawha Canal Company last year, 32 died from “bad treatment, exposure and filthy accommodations.” This shows a mortality of 9 per cent., the mortality in the prison being only 2½ per cent. The Legislature has appointed a committee to investigate the matter.

Messrs. Wyeth's Preparations.

Several of these have been recently analyzed by the well known London chemist, Dr. C. R. C. Tichborne, F.C.S., whose results are published in the *Medical Press and Circular*, Nov. 27. In regard to their dialysed iron, he says:—

Our analysis of Wyeth's preparation gave—	
Ferric oxide (in the soluble form)	6.228
Chlorine,	.100
Water,	93.672
Total,	100.000

We may say, therefore, that it contains in the ounce fluid 27.68 grains of a basic salt of iron, which, strange to say, almost exactly agrees in composition with the results obtained by Graham. In his experiments he obtained a red liquid containing 98.5 parts of oxide, and 1.5 of muriatic acid. The salt contained in Wyeth's preparation contains 98.42 ferric oxide, and 1.58 of chlorine.

In reference to their "saccharated pepsine," Dr. Tichborne says—

No analysis will absolutely show the value of a pepsine; indeed, it is of very little use, except to show up a worthless, or sham preparation, and we are sorry to say there are such in the market. No chemical analysis will give the information that a physiological test will; and we can state that ten grains of this saccharated pepsine when dissolved in two ounces of water, with the addition of a little hydrochloric acid, dissolved 150 grains of coagulated albumen in five hours, at a temperature of 80-90 deg. Fahr.

Messrs. Wyeth's preparations do them generally much credit, and deserve encouragement from the medical profession, who daily are becoming more alive to the necessity of using reliable preparations in their practice.

The Woman-Doctor Question in Russia.

It is sometimes stated that the woman doctor is a recognized institution in the empire of the Czar, a belief in some sort warranted by the prominence which has of late years been given in the medical schools of St. Petersburg to the training of women students in physic. According to the *Russian Medical Gazette*, it would appear that the question of women medical practitioners is not yet settled in Russia. On the 29th of October last the right of women who had completed a course of medical training to practice medicine in the empire was brought formally under the consideration of the Sanitary Council attached to the Ministry of the Interior. After prolonged discussion, the Council unanimously resolved, as follows:—"Although the right to practice medicine by the female students of the medical faculty has not to the present been recognized by the legislative authority, having regard to the evidence now submitted by the professors, that these students are fully competent to exercise the medical profession, the Sanitary Council will

itself endeavor to obtain from the Government the authorization necessary for them to enter upon practice."

Items.

—A bill for the establishment of a Department of Public Health has been introduced into the Senate. This is a movement which should have been taken long since.

—Forty-eight American ladies, students of medicine, under the guidance of a professor, have recently visited the hospitals and scientific establishments of Venice, Milan, Florence and Parma.

—A London court has fined a man who caused a public nuisance by manufacturing sulphate of ammonia \$15,000, though if he abates the nuisance and pays the costs, \$10,000 in a month, the fine will be remitted.

QUERIES AND REPLIES.

Wisconsin desires suggestions for the best method of removing India-ink stains.

In reply, we would say that the only process of any avail we know of is to tattoo it with a flesh-colored fluid. Other suggestions will be gladly received.

Dr. S. B., of Pa.—Strychnia has been frequently used with success in paralysis, by the hypodermic method. One injection a day, commencing with the minimum dose, and slowly increasing until physiological symptoms appear, is the plan recommended.

Student.—It is well known that in India the British government does not attack the peculiar religions of the people. In regard to the particular point you inquire about, we observe that the British Surgeon General at Madras says, in a report on the sanitary measures in India, just presented to Parliament, that prostitution is a recognized, and not always a despised, trade; it is a form of religious consecration, and, in the shape of concubinage, is a common feature of native life. Prostitutes in India are not the social outcasts they are in this and many other countries.

MARRIAGES.

CARTER—LOWE.—In Milford, N. J., on October 29th, 1878, at the residence of the bride's parents, by the Rev. Isaac M. Patterson, Mr. Henry Carter, of Cranbury, N. J. (formerly of Bloomsbury, N. J.), and Miss Georgia, daughter of John N. Lowe, M.D.

MAYNARD—MORFORD.—At the Reformed Church, Nyaok, N. Y., Wednesday, November 28th, by the Rev. W. A. McCorkle, D.D., Elsie de Reimer, second daughter of A. D. Morford, and Edward H. Maynard, M.D.

RIDER—STOUT.—At the residence of the bride's parents, Berlin, N. J., on the 20th ultimo, by Rev. E. H. Stokes, D.D., Hon. A. J. Rider, of the C. C. Commercial College, Trenton, N. J., and Ida M., second daughter of Daniel M. Stout, M.D., and niece of the officiating minister.

SHEPHERD—GENNETT.—In Cincinnati, Ohio, on Monday evening, November 18th, by Rev. D. H. Moore, D.D., President of Wesleyan Female College, at the residence of J. C. Thompson, Esq., 415 West Seventh street, Dr. G. W. I. Shepherd and Miss Annie E. Gennett.